



# Proposal to develop alternative future urban and agricultural land use footprints for Water Plan Update 2013



*Update 2013  
California Water Plan*



# January 4<sup>th</sup> Land Use Focus Group

- 💧 Summarized how the Water Plan used land use information in Update 2009 to estimate future water demand (Rich Juricich, DWR)
- 💧 Described UPlan model to estimate future urban footprints (Nate Roth, UC Davis)
- 💧 Shared proposal to develop alternative future urban and agricultural footprints in Water Plan Update 2013 (Tom Hawkins, DWR)
- 💧 Discussed next steps





# Update 2009 Scenarios

## Factors of Uncertainty

### Current Trends

Recent trends are assumed to continue into the future. Regulations are not coordinated or comprehensive, creating uncertainty for planners and managers. The state continues to face lawsuits, from flood damages to water quality and endangered species protections.

### Slow & Strategic Growth

Private, public, and governmental institutions form alliances to provide for efficient planning and development that is less resources intensive than current conditions. State government implements comprehensive and coordinated regulatory programs to improve water quality, protect fish and wildlife, and protect communities from flooding.

### Expansive Growth

Future conditions are more resource intensive than existing conditions. Protection of water quality and endangered species is driven mostly by lawsuits. State government has responded on a case-by-case basis, creating a patchwork of regulations and uncertainty for planners and water managers.

Population



59.5 million\* (22.8 million increase)



44.2 million (7.5 million increase)



69.8 million (33.1 million increase)

Land Use



Continued development



Compact development



Sprawling development

Irrigated Crop Area



8.6 million acres (0.7 mil. acre decrease)



9.0 million acres (0.2 mil. acre decrease)



8.2 million acres (1.0 mil. acre decrease)

Environmental Water



1.0 additional MAF



1.5 additional MAF



0.6 additional MAF

Background Water Conservation



10% more efficient



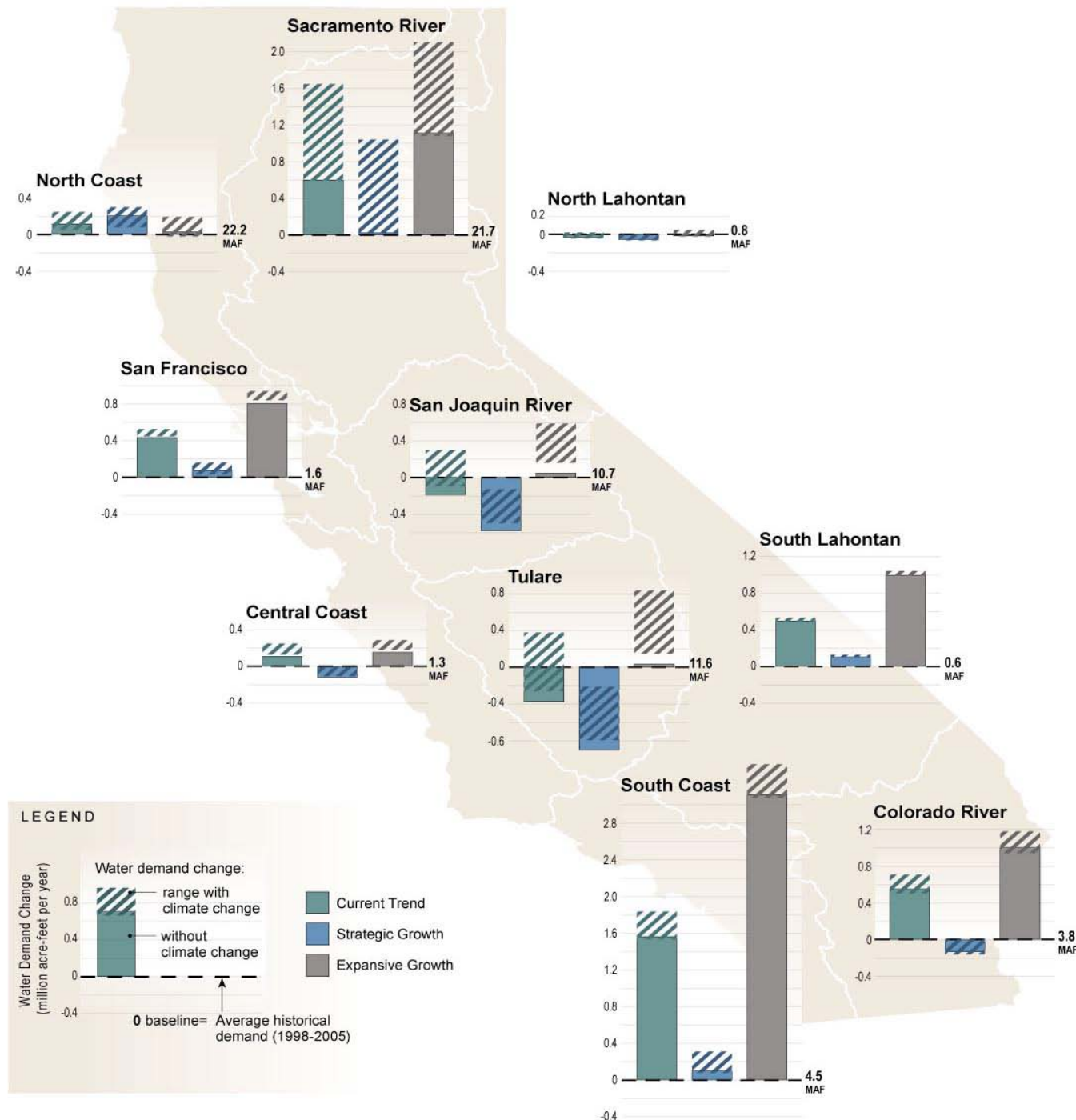
15% more efficient



5% more efficient



# Update 2009 Regional Water Demand Changes By Scenario



Update 2013

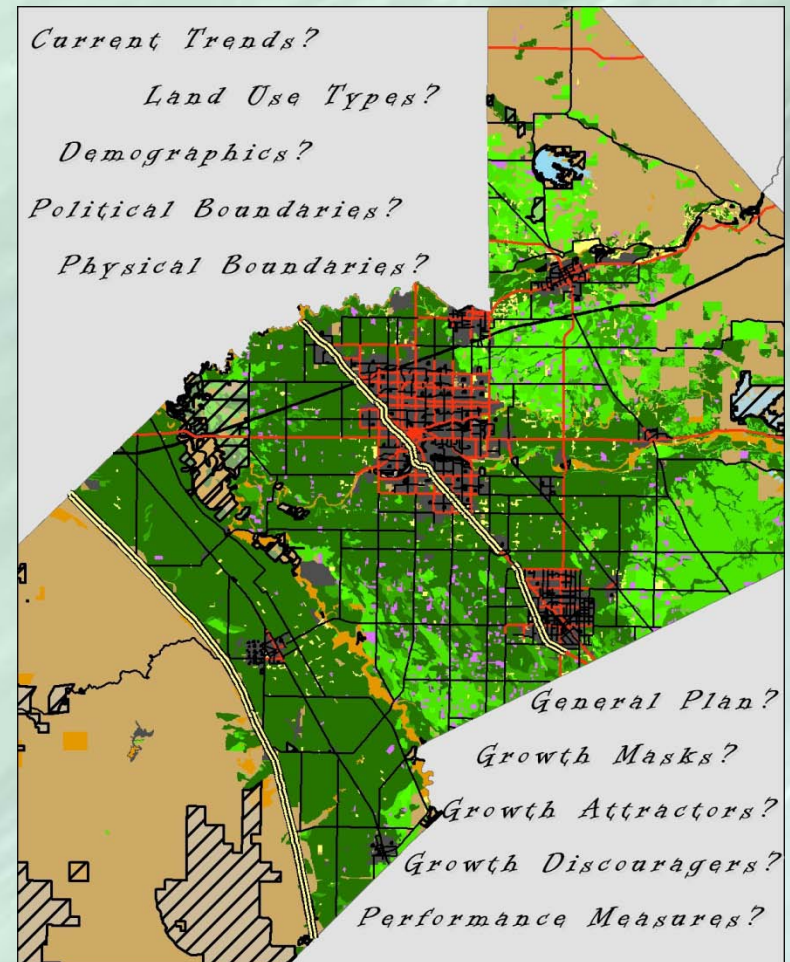
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# UPlan – Developed by UC Davis

## Rule Based Tool for Estimating Urban Growth

- 💧 Land Uses
- 💧 Demographics
  - Residential
  - Employment
- 💧 “General Plans”
- 💧 Masks
- 💧 Attractors
- 💧 Discouragers



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# Some Applications of UPlan

- 💧 Recent trends (aka Status Quo, Base Case, Business as Usual)
- 💧 General Plan Buildout
- 💧 Change Scenarios
  - Compact
  - Resource protection
  - New Cities
  - Resource limitations



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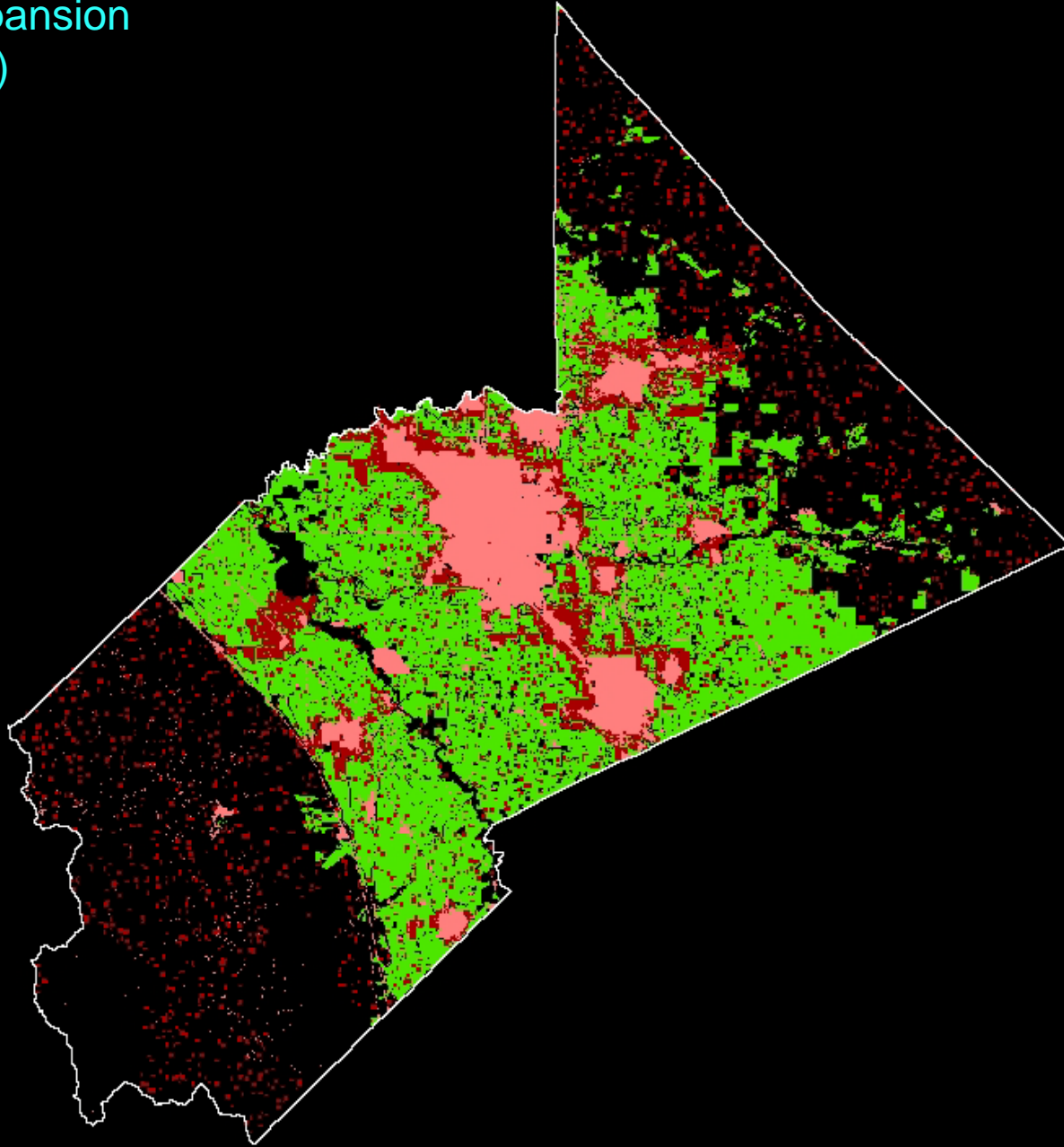


# Information Needs

- ◆ Population
- ◆ Infill Percentage
- ◆ Persons Per Household
- ◆ Housing Unit Percentages
- ◆ Housing Unit Lot Sizes
- ◆ Employees Per Household
- ◆ Percentage Employees By Industrial, Commercial HD and LD
- ◆ Building Square Footage per Employee by Industry, Commercial HD and LD
- ◆ Floor-to-Area ratio by Industry, Commercial-HD and LD



## 2050 Urban Expansion (Current Trends)





# Proposed Information Flows

## Population and Demographic Info

- Three population growth scenarios out to 2050

## Generate Urban Footprints (UPlan)

- Nine potential urban footprints based on population growth and development density

## Generate Agricultural Footprints

- Irrigated crop area considers urbanization and other factors

## Evaluate Future Water Management Conditions

- Future water use
- Application of alternative resource management strategies



# January 4<sup>th</sup> Feedback

- 💧 How is Infill and rural development included?
- 💧 How is agricultural land use changed?
- 💧 How is General Plan information used?
- 💧 Can you consider trends and changes in growth patterns?



# January 4<sup>th</sup> Feedback

- 💧 Coordination with Delta and Flood Planning efforts?
- 💧 Concerned about the Water Plan promoting specific land use policies
  - Development patterns
  - Crop planting decisions
- 💧 Need to hear more about how the Water Plan is linking urban and agricultural land use to water use and water management





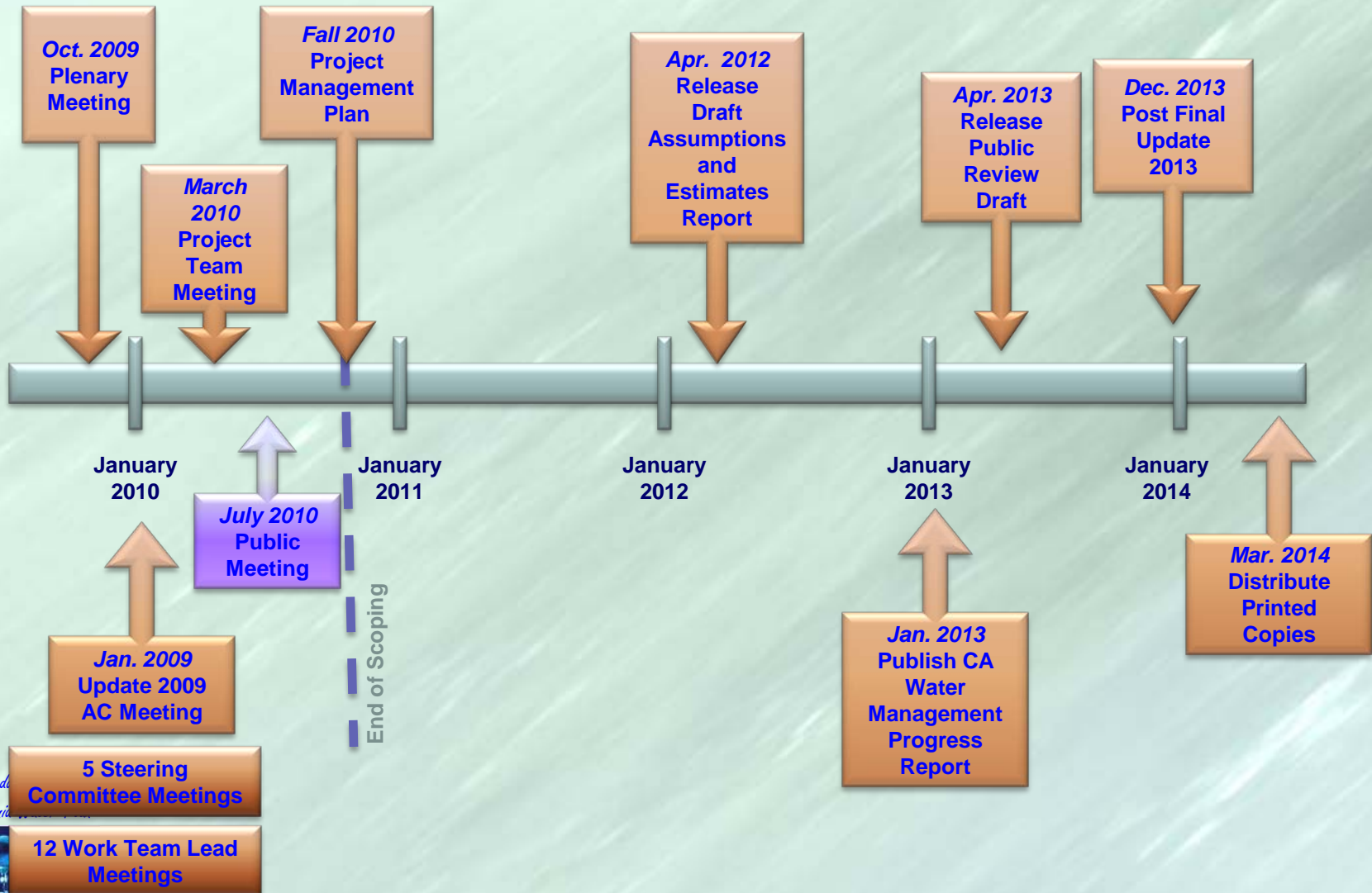
# Next Steps

- 💧 Follow-up survey with focus group
- 💧 Winter 2012 – Regional forums
- 💧 Spring 2012 – Assumptions & Estimates
- 💧 Summer 2012 – Quantify alternative urban and agricultural land use footprints
- 💧 Fall 2012 / Winter 2013 – Quantify relationships between alternative land use strategies and performance of resource management strategies



# Water Plan Update 2013

## *Timeline and Major Deliverables*



# Contact Information

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💧 SWAN

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